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11 feet, nor more than $2\frac{1}{2}$ fathoms) we again weighed, and passing Iricock without stopping, continued our descent (following the same course by which we had ascended) without interruption, into the estuary of the river; and at 6 h. 30 m. P.M. anchored off Duke's Town, having been absent 19 days on our expedition.

METEOROLOGICAL MEMORANDA, from September 7 to 26, inclusive.

Date.	Fahr. Therm. Shade.				Temp. of Water at Noon.	REMARKS.
	6 A.M.	Noon.	3 P.M.	6 P.M.		
Sept. 7	74	82	82	86	76	Remarkably fine—4 P.M., rain, thunder & lightning.
8	74	84	90	74	79	Showery—6 P.M., rain, thunder and lightning.
9	76	87	86	76	80	Remarkably fine—6 P.M., rain, thunder, &c.
10	76	82	80	76	78	Ditto 6 P.M., ditto.
11	74	89	92	87	80	Sultry and fine.
12	74	82	86	78	78	Remarkably fine.
13	72	82	90	76	78	Sultry and fine.
14	74	87	89	77	80	Ditto.
15	75	84	86	78	80	Fine—8 P.M., rain continuing all night.
16	74	76	80	78	78	A.M., rain—P.M. fine.
17	76	78	78	74	76	Ditto rain at noon—P.M., fine.
18	74	80	82	78	78	Remarkably fine.
19	74	81	82	79	78	Ditto.
20	74	80	84	78	77	Ditto.
21	74	76	76	74	76	A.M., fine—P.M., rain, with a strong S.S.W. breeze.
22	72	87	90	74	80	Ditto 6 P.M., rain, thunder and lightning.
23	74	78	82	76	78	Ditto P.M., showery.
24	74	86	86	76	80	Remarkably fine.
25	75	79	82	76	78	A.M., fine—P.M., showery—6 P.M., rain.
26	74	84	80	76	80	Ditto 2 P.M., rain—4 P.M., fine.

XV.—*Report on the Country to the Eastward of Flinders' Range, South Australia.* By C. E. FROME, Capt. R.E. Communicated by Lord STANLEY.

THE most northern point at which I found water last year was near the top of a deep ravine of the Black Rock Hills, in latitude $32^{\circ} 45' 25''$, where I left the dray, and the larger portion of my party, on the 20th of July last, taking on only a light spring-cart, the bottom filled entirely with kegs containing sufficient water for our horses for nearly three days, and provisions for one month, which was as much as the cart would contain.

My object being to ascertain the boundaries of the southern termination of the eastern branch of Lake Torrens, as laid down by Mr. Eyre, and also the nature of the country between Flinders' Range, as high as the parallel of Mount Hopeless, and the meridian of 141° (the eastern limits of the province), I kept, at first, a course as near N.N.E. as the nature of the ground would admit, to ensure my not passing to the E. of this extremity of the lake, from whence I intended, if possible, to pursue a line nearly N.E., as far as my time, and the means at my disposal, would allow me, hoping to reach the high land laid down by Sir Thomas Mitchell on the right banks of the Darling, to the N. of Mount

Lyell, and thus ascertain if any reasonable prospect existed of penetrating at some future time towards the interior from thence. The continued heavy rains which had fallen for more than three weeks before my departure from Adelaide on the 8th of July, and for nearly a fortnight afterwards, had left the surface water in pools on the scrubby plains, and in some of the ravines; but, on proceeding N., it was evident that these rains had not been there so general or so heavy, though, by steering from point to point of the hills, after crossing the Black Rock Range at Rowe's Creek, I was able to find sufficient water for the horses, and to replenish the kegs every second or third day. From this spot the plains, as well as the higher lands, appeared evidently to dip away to the N.E., the barren hills all diminishing in elevation, and the deep water-courses from Flinders' Ridge all crossing the plains in that direction. In one of these water-courses, the Siccus (latitude about $31^{\circ} 55'$), whose section nearly equals that of the Murray, there were indications of not very remote floods having risen to between 20 and 30 feet above its bed, plainly marked by large gum-trees lodged in the forks of the standing trees, and lying high up on its banks, on one of which I remarked dead leaves still on the branches; and in another creek, Pasmore River (lat. $31^{\circ} 29'$), a strong current was running at the spot where we struck it (owing, I suppose, to recent heavy rain among the hills from whence it has its source), but below this point the bed was, like that of all the other creeks, as dry as if no rain had ever fallen, and with occasional patches of various shrubs and salt-water tea-tree growing in it. After crossing the low ridge above Prewitt's Springs, lat. $31^{\circ} 45'$, forming the left bank of the basin of the Siccus, the plain extended between the N. and E. as far as the eye could reach, and the lurid glare on the horizon, as we advanced northward, plainly indicated the approach to Lake Torrens, which, from the direction I had followed, I expected to turn about this point. I was obliged, however, to continue a northerly course for the sake of water, which I could only hope to find in the ravines of the hills on our left, as high as the parallel of $30^{\circ} 59'$, where the lake was visible within 15 or 16 miles, and appeared from the high land to be covered with water, studded with islands, and backed on the E. by a bold rocky shore. These appearances were, however, all deceptive, being caused solely by the extraordinary refraction, as, on riding to the spot on the following day, not a drop of water was to be seen in any direction. The islands turned out to be mere low sandy ridges, very scantily clothed with stunted scrub on their summits, and no distant land appeared anywhere between the N. and S.E., though, from the hills above our camp of the previous night, I could discern, with the aid of a very powerful telescope, a ridge

of low land, either on the eastern side of the lake, or rising out of it, distant at least 70 miles, rendered visible at that distance by the excessive refractive power of the atmosphere on the horizon. A salt crust was seen at intervals on the surface of the sand at the margin of the lake, or, as it might be more properly called, the desert; but this appearance might be caused either by water brought down by the Siccus, and other large water-courses, spreading over the saline soil in times of flood, or by rain, and appeared to me no proof of its being ever covered with water for any length of time. A few pieces of what appeared drift timber were also lying about its surface. The sand, as we advanced farther E., became more loose and drifting, and not a blade of grass or any species of vegetation was visible, rendering hopeless any attempt to cross it with horses. This point of the lake shore being, by Mr. Eyre's chart, about 30 miles to the westward of where I found it, I thought it advisable to push farther N. in the direction of the highest point of the range, which I imagined was probably his Mount Serle; for though it was not to be expected that Mr. Eyre, whose principal and almost sole object was the discovery of a road into the interior, would, at the same time, have been able to lay down the position of his route with the same accuracy that might have been expected from a surveyor, this difference of longitude prevented my being certain of the identity of the spot, or that the range on our left might not, after all, be another long promontory running to the N., similar to that on the western side of which was Mr. Eyre's course. The appearance of the country, however, from the hills close under Mount Serle (for the perpendicular cliffs on the E. side of this range of hills prevented my ascending to their summit without turning them among the ranges, for which I had not then time) convinced me at once, from its perfect accordance with the description given by Mr. Eyre, that his eastern arm of Lake Torrens was the sandy desert I had left, its surface being about 300 feet above the level of the sea; and, our two converging lines having thus met at Mount Serle, I knew it was useless to advance farther in the same direction, to a spot which he had named—from the impossibility of proceeding beyond it—"Mount Hopeless."

I was thus forced to return to Pasmore River, as the nearest point from whence I could cross to the low hills to the eastward, S. of Lake Torrens, and from thence I sent back to the dépôt two men of the party and three horses, the former for the sake of their rations, and the latter on account of the probable difficulty I should have in procuring water, taking on with me only Mr. Henderson and Mr. Hawker, on foot, with the light cart and one policeman. The second evening I made the most

northern of these hills, but could not find a drop of water in any of them, and, having unluckily lost the policeman, who had crossed in front of the dray and got entangled in the dense scrub, I was detained three days riding upon his tracks, until I had traced them to our dray tracks from the dépôt at the Black Rock Hill, which he reached in safety after being out 5 days without food. The cart, in the mean time, had been obliged to leave the spot where I had left it for want of water, having been out 6 days without obtaining any but what we carried in the kegs; and when I overtook it, we had not sufficient provisions for another attempt, the period of one month, for which they were intended to last, having already nearly expired.

I very much regret not having been able to reach, at all events, within sight of Mount Lyell; but where I turned I could plainly see the whole country within 50 or 60 miles of the boundaries of the province, and can speak with almost as much confidence of its absolute sterility as if I had actually ridden over it. It would certainly be possible in the wet season to take a small party from Prewitt's Springs across to this hill of Sir Thomas Mitchell's (distant about 160 miles), by carrying on water for 8 or 10 days; but no further supply might be found short of the Darling (80 miles beyond Mount Lyell), on which river it would be madness to attempt anything without a considerable force, on account of the natives; and the same point might be reached in nearly as short a time, and with much more certainty, with any number of men that might be considered necessary, by ascending the Murray as high as the Laidley Ponds, and by proceeding N. from thence.

On returning to the dépôt, I moved the party down to Mount Bryan, and made another attempt, on the 25th of August, with Mr. Henderson and one man leading a pack-horse, to the N.E., hoping, from the heavy rains which had fallen during the past two months, to find sufficient water in the ravines to enable me to push on for several days. The second day I crossed the high range I had observed from the Black Rock Hill and Mount Bryan, for the southern termination of which Colonel Gawler steered when he left the northern bend of the Murray in December, 1839; but though these hills had an elevation of 1200 or 1400 feet above the plain, there was no indication of rain having fallen there within any definite period of time. This want of water prevented my proceeding farther to the N.E.; but from the summit of the highest of these hills (Mount Porcupine) I had a clear view of the horizon in every direction, and a more barren, sterile country cannot be imagined.

The direction of the dividing ridge between the basin of the Murray and the interior or desert plain, was generally about

N.E. from the Black Rock Hills (the highest point N. of Mount Bryan), gradually decreasing in elevation, and, if possible, increasing in barrenness. The summit of these hills I found invariably rock, generally sandstone; the lower slopes covered with dense brush, and the valleys with low scrub, with occasional small patches of thin wiry grass. I was obliged to return on the third day, and reached the foot of Mount Bryan on the fourth evening, at the southern extremity of which hill the horses were nearly bogged in the soft ground.

It appears to me certain, from the result of these different attempts, that there is no country eastward of the high land extending N. from Mount Bryan as far as Mount Hopeless, a distance of about 300 miles, as far as the meridian of 141° (and probably much beyond it), available for either agricultural or pastoral purposes; and that, though there may be occasional spots of good land at the base of the main range, on the sources of the numerous creeks flowing from thence towards the inland desert, these must be too limited in extent to be of any present value.

The nature of the formation of the main range I found, generally, ironstone-conglomerate and quartz, with sandstone and slate at the lower elevations. At the points of highest elevation, from Mount Bryan northward, igneous rocks of basaltic character protruded from below, forming rugged and fantastic outlines.

At one spot, particularly, about lat. 31° , there were marked indications of volcanic action, and several hollows resembling small craters of extinct volcanoes, near one of which we found a small spring of water maintaining always a temperature of about 76° Fahrenheit, when the thermometer standing in water in the kegs stood at 52° , and in the atmosphere at 54° .

The accompanying sketch of the country from Mount Bryan northwards, will probably explain its character better than any written description. The altitudes, marked at the different spots where they were observed, were obtained by the temperature of boiling water, as observed by two thermometers; but, as they were not graduated with sufficient minuteness for such purposes, the results can only be considered approximate.

Sketch of the Country
East of Flinders Range ;
SOUTH AUSTRALIA ;
to illustrate a paper,
 By Captⁿ Frome R^l Eng^s
Surv^r Gen^l of the Colony
 1843.

Captⁿ Frome's Route is Coloured Red.

